

REMARKS

By the above amendment, claim 32 has been amended to depend from claim 16 rather than cancelled claim 17, so that the objection to claim 32 should now be overcome.

The Examiner, Mr. Nguyen, is thanked for the courtesy extended applicants during the telephone discussion of December 7, 2006, wherein differences between the claimed invention and the cited art, were discussed, and the Examiner indicated that the recitation of "predetermined angle" could be considered 0°. The undersigned attorney advised that such interpretation is not proper in light of the claim language, as will be discussed below. The Examiner indicated that upon formal presentation of arguments, consideration would be given thereto.

The rejection of claims 1 - 3, 14 - 16, 18 and 32 - 38 under 35 USC 102(e) as being anticipated by Hattori et al (US Patent No. 6,464,360); the rejection of claims 4, 19, 30 and 31 under 35 USC 103(a) as being unpatentable over Hattori et al (US Patent no. 6,464,630); the rejection of claims 5 - 8 and 20 - 23 under 35 USC 103(a) as being unpatentable over Hattori et al (US Patent No. 6,464,360) in view of Kitagishi (JP 071318861); and the rejection of claims 9 - 12 and 24 - 29 under 35 USC 103(a) as being unpatentable over Hattori et al (US Patent No. 6,464,360), in view of Ichikawa et al (US Patent No. 6,463,144); such rejections are traversed and reconsideration and withdrawal of the rejections are respectfully requested.

As to the requirements to support a rejection under 35 USC 102, reference is made to the decision of In re Robertson, 49 USPQ 2d 1949 (Fed. Cir. 1999), wherein the court pointed out that anticipation under 35 USC §102 requires that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. As noted by the court, if the prior art

reference does not expressly set forth a particular element of the claim, that reference still may anticipate if the element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Moreover, the court pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

As to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

At the outset, applicants note that claims 1 and 16 are the only independent claims present in this application, with the remaining claims depending directly or indirectly therefrom, and the independent claims recite the feature of a liquid crystal display element in a projection type display unit and the liquid crystal display element

includes two substrates with a liquid crystal layer interposed therebetween as well as other features. More particularly, as illustrated in Figs. 1 and 2 of the drawings of this application and as recited in each of independent claims 1 and 16, a projection light beam is incident upon and emergent from the liquid crystal layer through at least one of the two substrates, in directions which lie in a plane which is substantially perpendicular to a direction of orientation of the liquid crystal molecules at at least one of the two substrates, with the light beam being modulated by the liquid crystal molecules. Furthermore, each of the independent claims recite the features that:

the light beam impinges upon the liquid crystal layer in a direction which is inclined by a predetermined angle to a direction of a normal line (of the substrate) (claim 1), or (at least one of the two substrates) (claim 16), and a direction of polarization of the incident light beam upon the liquid crystal layer is substantially perpendicular or parallel to the direction of the orientation of the liquid crystal molecules.
(emphasis added).

With this configuration, as illustrated in Figs. 1 and 2, the present invention can exhibit such remarkable technical effects that highly fine display can be made while the voltage for driving the liquid crystal display can be reduced, and accordingly, a reflection type liquid crystal display apparatus can be provided at low cost.

Applicants note that the aforementioned features are recited in each of independent claims 1 and 16, and applicants submit that such features are not disclosed or taught by Hattori.

In applying Hattori et al to the claimed invention, the Examiner refers to Figs. 1 and 10 of Hattori et al and the accompanying text. Irrespective of the contentions by the Examiner, and as pointed out to the Examiner during the telephone discussion, assuming arguendo, that the liquid crystal display element is represented by the light valves 13R, 13G and 13B in Fig. 1, and light valves 40R, 40G and 40B in

Fig. 10, it is readily apparent that the light from the light source impinges on each of the valves in a direction of a normal line of a substrate of such valves, and likewise, light emerges from such valves in the same direction which is a direction of the normal line of the substrate. During the discussion, the Examiner apparently agreed with applicants interpretation of Hattori et al that the light is incident upon a respective light valve in a direction of a normal line of the substrate of the valve and emerges from the valve in the same direction. However, the Examiner apparently contends that the recitation in each of claims 1 and 16 that the light beam impinges upon the liquid crystal layer in a direction which is inclined by a predetermined angle to a direction of a normal line of the substrate or one of the two substrates, may be considered to be disclosed by Hattori et al if the predetermined angle is 0°. Applicants submit that this interpretation by the Examiner is contrary to the recitation in independent claims 1 and 16. That is, applicants submit that as recited, the predetermined angle cannot be 0°. More particularly, an accepted definition for "angle" is "the figure formed by two lines extending from the same point or by two surfaces diverging from the same line". Thus, 0° does not conform to the definition of an "angle". Each of independent claims 1 and 16 further define the feature that the light beam impinges in a direction which is inclined by a predetermined angle to a direction of a normal line. An accepted definition for "inclined" is "making an angle with a line or plane". Thus, since a normal line of the substrate is a line which is perpendicular to the substrate, the light beam, as recited in claims 1 and 16, impinges upon the liquid crystal layer in a direction which is other than along the normal line or in a direction other than perpendicular to the substrate. Thus, applicants submit that in such feature alone, each of independent claims 1 and 16

and therewith, the dependent claims patentably distinguish over Hattori et al in the sense of 35 USC 102 and 35 USC 103.

Furthermore, each of claims 1 and 16, as noted above, recites the feature that the direction of polarization of the incident light beam upon the liquid crystal layer is substantially perpendicular or parallel to the direction of orientation of the liquid crystal molecules. Irrespective of the contentions by the Examiner, applicants submit that there is no disclosure or teaching in Hattori et al of this recited feature of the independent claims, such that all claims patentably distinguish over Hattori with regard to this additional feature. For the foregoing reasons, applicants submit that independent claims 1 and 16 and the dependent claims patentably distinguish over Hattori et al in the sense of 35 USC 102 and 35 USC 103 and all claims should be considered allowable thereover.

With respect to the dependent claims, applicants note that for example, the dependent claims recite further features not disclosed or taught by Hattori et al and the dependent claims, when considered with the parent claims further patentably distinguish over Hattori et al and should be considered allowable thereover.

With regard to the proposed combination of Hattori et al and other cited art such as Kitagishi and Ichikawa et al, applicants note that since Hattori et al does not provide for the incident light angle, as claimed, and the utilization with Kitagishi, would be contrary to the disclosure of Hattori et al. Moreover, while Kitagishi refers to a Brewster angle, it is noted that such angle is not utilized in relation to a beam impinging upon a liquid crystal layer of a liquid crystal display element, as recited. Likewise, any proposed combination of Ichikawa et al with Hattori et al is contrary to the disclosure of Hattori et al. Thus, Ichikawa cannot be properly combined with Hattori et al to overcome the deficiencies thereof in the sense of 35 USC 103.

Applicants submit that any combination of the cited art represents a hindsight reconstruction attempt utilizing the principle of "obvious to try", which is not the standard of 35 USC 103. See, In re Fine, Supra. Thus, applicants submit that the dependent claims, which recite further features in conjunction with the parent claims, all patentably distinguish over Hattori et al taken alone or in combination with any cited art, and all claims should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that all claims present in this application should now be in condition for allowance and issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.41256X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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